

IN THE CLAIMS

1. (Currently Amended) A device for negotiating a data transmission mode in a device-to-device interconnection (DDI) during a negotiation period prior to entering an operational mode, comprising:

a data transceiver adapted to be coupled to one or more data lanes of the DDI, and comprising a physical coding sublayer (PCS) corresponding to each of a plurality of data transmission modes, wherein said PCS is not enabled during the negotiation period;

a negotiation section comprising:

logic to transmit a Base Page Message indicating whether a Next Page message is to follow, said Next Page message specifying one or more available data transmission modes for transmitting at least one Ethernet frame in the DDI, said logic further configured to detect 8B/10B code groups on each data lane of the DDI in the absence of a Base Page Message, said logic capable of identifying at least one legacy device that does not support autonegotiation, said at least one legacy device including at least one of 10 gigabit interface or at least one of gigabit Ethernet transmission interface (1000BASE-X) and serial gigabit media independent interface (SGMII); and

configuration logic to selectively configure the data transceiver to transmit and receive data on the DDI according to a data transmission mode based upon the detected 8B/10B code groups, and to enable said PCS to operate in a data transmission mode selected during the negotiation period.

2. (Original) The device of claim 1, wherein the negotiation section further comprises logic to selectively configure the data transceiver to transmit and receive data on the DDI according to a 1000BASE-X data transmission mode in response to detecting 8B/10B code groups on a single data lane.

3. (Original) The device of claim 1, wherein the negotiation section further comprises logic to selectively configure the data transceiver to transmit and receive data on the

DDI according to a XAUI data transmission mode in response to detecting 8B/10B code groups on four data lanes.

4. (Original) The device of claim 1, wherein the negotiation section further comprises logic to selectively configure the data transceiver to transmit and receive data on the DDI according to an SGMII data transmission mode in response to detecting 8B/10B code groups on a single data lane.

5. (Original) The device of claim 1, wherein the negotiation section further comprises logic to selectively configure the data transceiver to transmit and receive data on each of a plurality of data lanes of the DDI according to a 1000BASE-X data transmission mode in response to detecting 8B/10B code groups on each of the plurality of data lanes.

6. (Previously Presented) The device of claim 1, wherein the negotiation section further comprises logic to selectively configure the data transceiver to transmit and receive data on each of a plurality of data lanes of the DDI according to an SGMII data transmission mode in response to detecting 8B/10B code groups on each of the plurality of data lanes.

7. (Original) The device of claim 1, wherein the data transceiver is capable of operating in one or more data transmission modes, and wherein the negotiation circuit further comprises logic to transmit a link pulse signal on at least one data lane in the DDI during the negotiation period to identify the one or more data transmission modes.

8. (Original) The device of claim 1, wherein the data transceiver circuit is adapted to be coupled to at least one differential pair corresponding to at least one of the data lanes.

9. (Original) The device of claim 8, wherein the DDI is formed in a printed circuit board comprising a pair of copper traces for each differential pair.

10. (Cancelled).

11. (Previously Presented) The device of claim 1, wherein the Next Page message comprises at least a first bit indicating an availability of a first data transmission mode using a single data lane in the DDI and a second bit indicating an availability of a second data transmission mode using four data lanes.

12. (Previously Presented) The device of claim 1, wherein the Next Page message comprises at least a first bit indicating an availability of a 1000BASE-X data transmission mode, at least a second bit indicating a XAUI data transmission mode and a third bit indicating a 10 Gbps data transmission mode over a single data lane.

13. (Currently Amended) The device of claim 1, wherein the data transceiver further comprises a physical medium attachment (PMA) section ~~and a physical coding sublayer (PCS)~~ corresponding to each of a plurality of data transmission modes, and wherein the configuration logic comprises logic to enable the PMA ~~and PCS~~ associated with a data transmission mode selected during the negotiation period.

14. (Previously Presented) The device of claim 1, wherein the configuration logic comprises logic to selectively configure the data transceiver circuit to transmit and receive data on the DDI in a data transmission mode according to either 10 gigabit attachment unit interface (XAUI) or at least one of 1000BASE-X and serial gigabit media independent interface (SGMII).

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Previously Presented) The device of claim 7, wherein the configuration logic comprises logic to selectively configure the data transceiver to transmit and receive data to a plurality of ports couple to the DDI in response to the link pulse signal.

19. (Cancelled).

20. (Cancelled).

21. (Currently Amended) A method for negotiating a data transmission mode in a device-to-device interconnection (DDI) during a negotiation period prior to entering an operational mode, comprising:

determining whether a Base Page Message indicating whether a Next Page message is to follow has been sent, said Next Page message specifying one or more available data transmission modes for transmitting at least one Ethernet frame in the DDI;

detecting 8B/10B code groups on at least one data lane of the DDI in the absence of a Base Page Message by identifying at least one legacy device that does not support autonegotiation, said at least one legacy device including at least one of 10 gigabit interface or at least one of gigabit Ethernet transmission interface (1000BASE-X) and serial gigabit media independent interface (SGMII); and

selectively configuring a data transceiver to transmit and receive data on the DDI according to a data transmission mode based upon the detected 8B/10B code groups, wherein said data transceiver comprises a physical coding sublayer (PCS) corresponding to each of a plurality of data transmission modes and said PCS is not enabled during the negotiation period, and enabling said PCS to operate in a data transmission mode selected during the negotiation period.

22. (Cancelled).

23. (Currently Amended) A system for negotiating a data transmission mode in a device-to-device interconnection (DDI) during a negotiation period prior to entering an operational mode, comprising:

a media access controller comprising a media independent interface (MII); and

a communication device comprising:

a data transceiver adapted to be coupled to one or more lanes of the DDI, the data transceiver being coupled to the MII to transmit data between the MII and the DDI, wherein said data transceiver comprises a physical coding sublayer (PCS) corresponding to each of a plurality of data transmission modes, and said PCS is not enabled during the negotiation period; and

a negotiation section comprising:

logic to transmit a Base Page Message indicating whether a Next Page message is to follow, said Next Page message specifying one or more available data transmission modes for transmitting at least one

Ethernet frame in the DDI, said logic further configured to detect 8B/10B code groups on each data lane of the DDI in the absence of a Base Page Message, said logic capable of identifying at least one legacy device that does not support autonegotiation, said at least one legacy device including at least one of 10 gigabit interface or at least one of gigabit Ethernet transmission interface (1000BASE-X) and serial gigabit media independent interface (SGMII); and

configuration logic to selectively configure the data transceiver to transmit and receive data on the DDI according to a data transmission mode based upon the detected 8B/10B code groups, and to enable said PCS to operate in a data transmission mode selected during the negotiation period.

24. (Original) The system of claim 23, wherein the system further comprises a switch fabric coupled to the MAC.

25. (Original) The system of claim 23, wherein the system further comprises a packet classification device coupled to the MAC.

26. (Cancelled).

27. (Cancelled).

28. (Cancelled).

29. (Currently Amended) A system for negotiating a data transmission mode in a device-to-device interconnection (DDI) during a negotiation period prior to entering an operational mode, comprising:

a physical layer communication device to transmit data between a transmission medium and a media independent interface (MII); and

a communication device comprising:

a data transceiver adapted to be coupled to one or more lanes of the DDI, the data transceiver being coupled to the MII to transmit data between the MII and

the DDI, wherein said data transceiver comprises a physical coding sublayer (PCS) corresponding to each of a plurality of data transmission modes, and said PCS is not enabled during the negotiation period; and
a negotiation section comprising:

logic to transmit a Base Page Message indicating whether a Next Page message is to follow, said Next Page message specifying one or more available data transmission modes for transmitting at least one Ethernet frame in the DDI, said logic further configured to detect 8B/10B code groups on each data lane of the DDI in the absence of a Base Page Message, said logic capable of identifying at least one legacy device that does not support autonegotiation, said at least one legacy device including at least one of 10 gigabit interface or at least one of gigabit Ethernet transmission interface (1000BASE-X) and serial gigabit media independent interface (SGMII); and

configuration logic to selectively configure the data transceiver to transmit and receive data on the DDI according to a data transmission mode based upon the detected 8B/10B code groups, and to enable said PCS to operate in a data transmission mode selected during the negotiation period.

30. (Original) The system of claim 29, wherein the physical layer communication device is adapted to transmit data between the MII and a fiber optic cable.

31. (Original) The system of claim 29, wherein the physical layer communication device is adapted to transmit data between the MII and a twisted wire pair cable.

32. (Cancelled).

33. (Cancelled).

34. (Cancelled).

35. (Previously Presented) The device of claim 1, wherein the device is further configured to carryout an encapsulated autonegotiation during the operational mode to identify additional capabilities while communicating according to a data transmission mode selected during the negotiation period.

36. (Cancelled)

37. (Previously Presented) The method of claim 21, further comprising carrying out an encapsulated autonegotiation during the operational mode to identify additional capabilities while communicating according to a data transmission mode selected during the negotiation period.

38. (Cancelled)

39. (Previously Presented) The system of claim 23, wherein the system is further configured to carryout an encapsulated autonegotiation during the operational mode to identify additional capabilities while communicating according to a data transmission mode selected during the negotiation period.

40. (Cancelled)

41. (Currently Amended) The system of claim ~~23~~29, wherein the system is further configured to carryout an encapsulated autonegotiation during the operational mode to identify additional capabilities while communicating according to a data transmission mode selected during the negotiation period.

42. (Cancelled)